What pre-merger conditions are necessary for mergers to be successful?

Honors Thesis by Addy (Aditya) Mittal.[1]

The Ohio State University

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Abstract

In this paper I examine the various pre-merger conditions necessary for a merger and acquisition activity to be successful. I have done this by analyzing information from a sample of random companies and then looking at factors such as the merger value, the long term debt to income ratio, the average pre merger earnings per share and the long term asset-income ratio of the companies The results of my analysis shows that a higher value of merger leads to failure of the merger, the higher value of asset-income ratio leads to a successful merger. Higher debt Income ratio increases chances of failure. I take into account strictly these pre-merger conditions for the acquiring company.

I-Introduction

Past research[2] indicates that half or more of all merger and acquisition activity fail to create any significant shareholder value. The fact is that most mergers and acquisitions place the market capitalization of a particular company at risk and in return deliver very small value. Analysts have estimated that 70% of all mergers fail. A study by KPMG[3] found that only 17% of mergers add value to the combined companies, 30% produced no actual difference and 53% actually destroyed value. Thus 83% of all mergers failed to produce any business benefits as regards shareholder value. It is important to look at the pre merger condition that will lead to the success or failure of the merger.

I examine four pre-merger factors that might affect the success of the merger. The first factor I look at is the size of the merger. I expect that the size of the merger should affect the overall performance. Although mergers are supposed to generate synergies, large mergers may not by themselves, generate these cost savings. As a matter of fact, too big a merger may lead to the cost inefficiency because of its huge scale of operation. The second factor I look at is pre merger earnings per share. Higher company earnings per share represent higher profitability of the company. A company with high earnings per share is expected to do well after the merger. The pre-merger financial health of the company also determines the success and failure of a merger. One indicator of the financial health is the asset-income ratio. A company with a higher asset/income ratio is in good financial health compared to one with low asset-income ratio. Hence, I hypothesize that companies with a higher pre-merger asset-income ratio has a higher chance of post-merger success than the one with low asset-income ratio. The fourth factor

[2] McKinsey Quarterly, 2001 Number 1 "Deals that create value".
[3] Schleier, "The World's Greatest Masters of M&A"

I examine for the pre-merger financial health of a company is debt-income ratio. A higher debt-income ratio signifies a poor financial health of the company. So I expect that companies with a lower debt-income ratio have a lower chance of success in the post-merger period.

In this paper, I first give a brief introduction about mergers and acquisitions. I state what the different types of mergers and acquisitions are and then discuss the different merger waves and their importance. My empirical analysis, however, is based strictly on the fifth and the latest wave. In the next section I discuss the various motivations for mergers and acquisitions taking into account synergy and diversification. I then go on to discuss the theory behind successful and unsuccessful mergers. Finally, I present my empirical analysis including my data, methodology, analysis and regression tables.

II-Background on Mergers

A merger is a combination of two corporations in which only one corporation survives and the merged corporation goes out of existence. In a merger, the acquiring company assumes the assets and liabilities of the merged company. This can also be called a statutory merger. This is different from a subsidiary merger where the target company becomes a subsidiary or part of a subsidiary of the parent company. An example of a subsidiary merger is the acquisition of Electronic Data System by General Motors led by CEO Ross Perot. In a merger the acquiring firm retains its name and its identity, and it acquires all of the assets and liabilities of the acquired firm. After a merger, the acquired firm ceases to exist as a separate business entity.

In a consolidation, a business combination takes place whereby two or more companies join to form an entirely new company. Both the acquiring firm and the acquired firm terminate their previous legal existence and become part of the new firm. Here the distinction between the acquiring firm and the acquired firm is not important. However, the rules for mergers and acquisition are basically the same. An example of this could the formation of Bank of America in 1998 whereby BankAmerica, based out of San Francisco and Nations bank based in Charlotte, formed Bank of America. Another example is the combination of computer manufacturers Burroughs and Sperry in 1986 to form UNISYS. In a consolidation the original stockholders of the merging companies become stockholders of the new company. Although mergers and consolidations are different terms, they are often used interchangeably. In the industry, when two firms are of equal size, the term consolidation can be used. When the two firms differ in size, the word merger is more often used. Another term that is used is takeover. This refers to

hostile transactions and can also mean some friendly deals. It is therefore regarded as a general and imprecise term referring to the transfer of control of a firm from one group of shareholder to another. A firm that has decided to take over another firm is usually referred to as the bidder. The bidder offers to pay cash or securities to obtain the stock or assets of another company. If the offer is accepted the target firm will give up control over its stock or assets to the bidder in exchange for consideration (i.e. its stock, its debt, or cash).

History of Mergers and acquisitions

To understand the importance of mergers and acquisitions it is important to get a sense of the history of mergers and acquisition. In the United States five periods of merger activity have taken place. Understanding these waves is important in order to understand the major business transitions that provoked various business leaders to see the importance of diversity and growth. The first wave was between 1897 and 1904, the second wave between 1916 and 1929, the third wave between 1965 and 1969 and the fourth wave between 1984 and 1989. The latest wave appeared at the beginning of the 1990s.

The First Wave, 1897-1904

The first merger wave arose with the end of a depression era (1883) and ended with the dawn of 1904. Data from the National Bureau of Economic Research indicates that eight industries (chemicals, transportation, machinery, bituminous coal, food products, fabricated metal products, primary metals and petroleum products) had the greatest number of mergers. The first wave mergers were predominantly horizontal in nature. This

often gave rise to monopolistic market structure. As a result of this, this period is highlighted as the monopolistic era. Another highlight of this era is the first billion dollar merger when J.P. Morgan's U.S. Steel joined Carnegie Steel, founded by Carnegie Steel. The resulting companies also merged with 785 other firms. Some of the other industrial giants of today's age were also formed by mergers in this era. Examples of such companies would be General Electric, Dupont Inc., Eastman Kodak, American Tobacco Inc. These companies enjoyed tremendous market share even by the end of the first merger wave.

An important thing to be noted here is that a majority of the mergers in this era failed. The many horizontal combinations that took place in the first wave were an attempt to achieve economies of scale. Through mergers and acquisitions the expanding economies sought to increase their efficiency by lower per-unit costs.

For example at one time U.S. Steel accounted for 75% of the United State's steel-making capacity. Standard Oil (owned by J.D. Rockefeller) had an 85% market share and American Tobacco had a 95% market share. As a result of the monopolistic mergers with industries, the 100 largest industrial corporations controlled 185 of the assets of all industrial corporations. Measures were taken to control such monopolistic acts, but then proved fruitless. The Sherman Antitrust Act[4] (1890) did not help curb acquisitions. The justice department was more geared towards labor unions.

[4] The Sherman Act made the formation of monopolies and other attempts to restrain trade, unlawful and criminal offenses punishable under federal law. The first two section contain important provisions.
Section 1: This section prohibits all contracts, combinations, and conspiracies in restraint of trade.
Section 2: This section prohibits any attempts or conspiracies to monopolize a particular industry.

The Second Wave, 1916-1929

The Second wave is similar to the first wave as many consolidations took place in this wave as well. After the First World War economic boom, a lot of investment capital was available by the eagerly waiting securities market. This however set the stage for the stock marker crash of 1929. The antitrust environment of the 1920s however was a lot stricter than the one in the first merger wave. Congress became aware that the Sherman Act was not effective and launched the Clayton Act of 1914[5]. Whereas the first merger wave gave rise to horizontal mergers, the second wave gave rise to vertical mergers. It thus produced fewer monopolies and more oligopolies. Many companies in unrelated industries started combining. The following five industries experienced the most amount of mergers in this era. Chemicals, Primary metals, Petroleum products, food Products, and Transportation Equipment. In a way the federal government encouraged the business cooperation to enhance the nation's productivity as part of the war effort. As mentioned earlier the stock market crash would end the second wave (October 29th, 1929). Another highlight of this era was that investment Bankers became big during this period as they played a great role in merger activities. The number of mergers that took place during those days demonstrates that investment bankers supported merger activities.

The Third Wave, 1965-1969.

Because of a booming economy during the third merger wave, a historical level of mergers took place. The firms that were formed as a result of this period were more than diversified. They were conglomerates which conducted their businesses in different

[5] The goal of the Clayton Act was to strengthen the Sherman Act while also specifically proscribing certain business practices. The Clayton Act clarified which business practices unfairly restrain trade and reduces competition.

industries. There was also a lot of pressure form the antitrust regulation environment such as the Celler-Kefauver Act[6] of the 1950s. Well known conglomerates such as ITT and LTV were formed during this period. Towards the end of this wave, Richard Nixon was elected and a freer market orientation was implemented. The Supreme Court began to use broad international market view as opposed to a more narrow domestic or even regional market definition.

The Fourth Wave, 1981-89

In the fourth wave a number of hostile mergers took place. Takeovers are considered friendly or hostile depending on the target firm's reaction to the merger. Another factor to consider during this wave was the significant percentage of the total dollar volume of mergers and acquisitions. It really was a wave of mega mergers. The number of $100 million transactions increased more than 23 times from 1974 to 1986. This differed from the conglomerate era of 1960s where small and medium sized businesses were being acquired. In this wave the term corporate raiders originated. The corporate raider tried to originate its income from takeover attempts. Paul Bilzerian was known for his corporate raids. He acquired Singer Corporation in 1988. Mergers also proved to be a great source of risk free advisory for investment bankers. The magnitude of these fees reached unprecedented proportions. The aggressive style of investment bankers in pursuing mergers and acquisition was crucial in the growth of investment bankers. Another feature of this period was the increased use of debt which was used to finance mega deals. This is a reason why small companies were able to bid for comparatively large firms. Leveraged

[6] The Celler-Kefauver Act prohibited the acquisition of assets of a target firm when the effect was to lessen competition. It also prohibited vertical mergers and conglomerate mergers when they were shown to reduce competition.

Buyout became a common phrase in the Wall Street. In 1990 the economy went into a brief mild recession which pretty much ended the fourth recession. This era also ended because of the collapse of the junk bond market, which had provided for many of the LBO deals.

The Fifth Wave

We again saw an abundance of huge deals in 1992. This gave rise to our final wave which still continues. This wave saw fewer hostile takeovers and more mega merges. The economy recovered from the 1990-1991 recession and the companies began to seek to expand and mergers were seen as a quick and easy way to do that. In this deal, however, strategy became an important part of the merger deal rather than a quick financial gain. They were financed through the increased use of equity which resulted in less heavily leveraged combinations. The large amount of consolidation deals were known as roll-ups. Fragmented industries were consolidated through larger scale acquisitions of companies that were called consolidators. This occurred particularly in the floral products, office products and funeral business. Another feature of this wave was that it was truly international in nature. By 1999, the value of deals in Europe was almost as large as in United States. Within Europe Britain accounted for the largest number of deals followed by Germany and France. In Asia, the majority of the deals were made in Japan.

The top ten worldwide Mergers and Acquisitions[7]

Announced Year	Effective Year	Acquirer	Target	Value $ Billions
1.Nov.1999	June 2000	Vodafone Air Touch	Mannesman AG	$ 202.8
2.Jan. 2000	Jan. 2001	America Online Inc.	Time Warner	$ 164.7
3.Nov 1999	Jun 2000	Pfizer Inc.	Warner-Lambert Co.	$ 89.2
4.Dec. 1998	Nov 1999	Exxon Corp.	Mobil Corp.	$ 78.9
5.Jan 2000	Dec 2000	Glaxo Wellcome PLC	SmithKline Beechman PLC	$ 76.0
6.Apr. 1998	Oct 1998	Travelers Group Inc.	Citicorp	$ 72.6
7.May 1998	Oct 1999	SBC Communications	Ameritech Corp.	$ 62.6
8.Jan 2000	May 2000	Shareholders	Nortel Networks Corp.	$ 61.7
9.Aprl 1998	Sept 1998	NationsBank Corp	BankAmerica Corp.	$ 61.6
10.Jan.1999	Jun 1999	Vodafone Group PLC	AirTouch Communication	$ 60.3

[7]Gaughan, *Mergers, Acquisitions, And Corporate Restructurings.*

III-Reasons for Mergers-Synergy

Companies are continuously looking for ways to grow and develop. They are faced with a choice between internal growth and growth through mergers. While internal growth might be a very slow process, growth through mergers is a more rapid process. While a company might grow slowly through internal process, its competitors might respond quickly and take market share. One way to take market share is to acquire another company that has the resources such as market dominance and management in place.

One of the driving factors behind any merger and acquisition deal is expected synergy. The reason companies fail to reach any expected synergy is because companies focus on the closing deal itself and do not understand the after effects of a merger. Their grand synergies prove unworkable in practice. They don't investigate the need for cultural balance as in the case of G.E's attempt to acquire Kiddler[8], an investment Banking firm with an entirely different culture. This synergy, however if recognized as both a "science and an art" can be reached quite successfully. Let's now investigate synergy in a little more detail. Synergy is the phenomenon when a corporate combination is more profitable than the individual parts of the firm that were combined. In other words, it is the potential additional value from combining two firms. It is both the most widely used and misused rationale for mergers.

The main types of synergy that can be achieved are operational and financial synergy.

Operating synergies

Operational synergies are those synergies that allow firms to increase their operating income, increase growth or both. There is a potential for operating synergy, in one form or the other, in many takeovers. We would categorize operating synergies as revenue

[8] Jack Welch Biography, *Straight from the gut.*

enhancing or cost reducing. The best way to describe **Revenue enhancing operating synergy** is to use the definition "a newly created or strengthened product or service that is formulated by the fusion of two distinct attributes of the merger partners and which generates immediate and/or long term revenue growth."[9] One of the primary motivators for synergy is greater generation of revenues than the two firms separately. This may come in the forms of sharing of marketing opportunities by cross marketing each company's products. There are other ways that revenue-enhancing synergies can be achieved. A company with a strong brand name may lend its reputation to an upcoming product line of a merger partner. A company with a strong distribution network may merge with a firm that has products of great potential but not sufficient ability to get them to the market before other rivals. Revenue enhancing synergies, however, are difficult to achieve even though they have many sources. The reason is that they are difficult to quantify and build into models. For this reason Cost related synergies are often highlighted in merger planning.

Synergies in **cost reduction** come through economies of scale – decreases in per unit cost that result from an increase in the size or scale of a company's operations. Manufacturing firms operate at high per unit costs for low levels of output. The fixed cost of operating their manufacturing facilities is spread out over relatively low level of outputs. So as the output level rises, the per unit costs decline. This is also known as spreading overhead. This term can be used with reference to sharing of central facilities such as corporate headquarters, top management and a large mainframe computer. Other sources of these gains arise from increased specialization of labor and management and

[9] This is Clemente and Greenspan's definition from their book *Winning at Mergers and Acquisitions: The Guide to Market-Focused Planning and Integration.*

the more efficient use of capital equipment. Several mergers are motivated by the pursuit of scale. We can see evidence of this in the cruise industry, which has undergone a series of consolidating mergers and acquisitions. The 1989 acquisition of Sitmar Cruises by Princess Cruises and the 1994 merger between Radisson Diamond Cruises and seven Seas Cruises enabled the combined cruise lines to offer an expanded product line in the form of more ships, beds, and itineraries while lowering per-bed costs. An important concept to understand with close relation to economies of scale is economies of scope. This is a firm's ability to successfully utilize one set of inputs to produce a more diversified range of products. This happens quiet often in the banking Industry. When Banking firms merge they can share their inputs to offer a broader range of services, such as trust departments, consumer investment products unit, or economic analysis group. Smaller banks might not be able to afford the costs of these departments. Inputs such as computer system may be shared to process a wide variety of loans and deposit accounts. Whether these benefits are either the true reason or a sufficient reason for the increased number of banking mergers that have taken place is a difficult issue to understand.[10]

Financial Synergy

An important reason for mergers and acquisitions is expected financial synergy. Financial synergies implication in a merger activity comes in terms of cost of capital. Cost of capital is generally lowered with the amount of financial synergy that exists in the combination. This is because the cost of issuing securities is subject to economies of scale. Professor Aswath Damodran mentions that with financial synergies, the payoff can take the form of either higher cash flows or a lower cost of capital. He states that when

[10] Patrick Gaughan, *Financial Deregulation, Banking Merger and the Impact on Regional business.*

two entities combine, their sources of cash flows and income earnings become consistent. This makes them a stronger entity in the market, allowing them to borrow more they could have as individual entities, thus increasing their debt capacity and creating a major tax benefit.

The two firms may reduce risk if the firm's cash flow streams are not perfectly correlated. If the acquisition or merger lowers the volatility of the cash flows, suppliers of capital may consider the firm less risky. The risk of bankruptcy would presumably be less, given the fact that wide swings up and down in the combined firm's cash flows would be less likely. This implies that it is less likely that cash flows would fall so low that the firm could become technically insolvent. Technical insolvency occurs when a firm cannot meet its current obligations as they come due. Technical insolvency may occur even when total assets exceed total liabilities. Another more serious form of business failure occurs when total liabilities exceed total assets and the net worth is negative. This effect is often dubbed as debt coinsurance[11]. If the correlation of the income streams of two firms is less than perfectly positive correlated, the bankruptcy risk associated with the combination of the two firms may be reduced. Under certain circumstances one of the firms could experience conditions that force it into bankruptcy. It is difficult to know in advance which one of two possible firms will experience this. Debt-coinsurance effect does not create any new value but merely redistributes gains among providers of capital to the firm. They also show that the stockholders' losses may be offset by issuing new debt after the merger. The stockholder will then gain through the tax savings on the debt interest payments. The additional debt would increase the debt-

[11] This word is derived from the Journal of Finance 30 "*Corporate bankruptcy and Conglomerate Mergers*," written by Higgins and Lawrence Schall.

equity ratio of the post merger firm to a level that stockholders must have found desirable, or at least acceptable, before the merger.

Tax benefits can arise either from the acquisition taking advantage of tax laws or from the use of net operating losses to shelter income. Thus, a profitable firm that acquires a money-losing firm may be able to use the net operating losses of the latter to reduce its tax burden. Alternatively, a firm that is able to increase its depreciation charges after an acquisition will save in taxes, and increase its value.

One of the factors discussed earlier was economies of scale through acquisitions. This is due to production cost decreases. But financial economies of scale are also possible in the form of lower transaction costs and floatation. Many times when companies combine they end up with excess cash or cash slack. Thus, they are able to participate in projects they otherwise could not be able to. This is most likely to take place when large firms acquire smaller firms or when public companies acquire private businesses.

Diversification

Thus far we have discussed the benefit of economies of scale. Another economic motive for a potential merger activity can be contributed to the possibility of diversification. This reason is viewed with missed opinions. Although many companies have gained significantly by doing this, many have regretted tremendously. The third merger wave (conglomerate era) is often considered a good indication of diversification techniques in mergers and acquisitions. When companies acquire other companies, it causes a short term financial gain to the acquiring company due to some kind of strategic financial and

accounting procedures. This financial gain or more likely described as a financial save is short lived and causes the acquiring firm's stock price to rise while adding little real value through the exchange.

So why do companies want to diversify. One of the first things that we learn in our finance classes in that putting all our eggs in one basket can lead to a great deal of risk. Companies diversify for the same reason i.e. to reduce risk. When we analyze this closely we see that companies are often exposed to two primary risks. First is systematic risk or whatever is common to all businesses and unsystematic risk or whatever is specific to the business. One of the greatest challenges in a merger activity is reducing systematic risks. Many have argued that reducing systematic risks is an impossible task to accomplish. Although systematic risk can be reduced to some degrees it is often seen in very small businesses who indulge in one business or a particular industry. Unsystematic risk is what companies focus on during a merger. Although it is a proven fact that diversification reduces risk, analysts often fail to see the need for this in a merger or acquisition. We know that a success of a merger or acquisition can be contributed to what happens to the shareholder value after the action has been announced in the market and a few days after this. Researchers and analysts argue that if the motive is to help the shareholders alone that they are much better off to diversifying by purchasing equity from different corporations in the stock market.

Another reason for diversification can be when companies enter industries that are more valuable and profitable in the long term than the current industries. A big challenge with this motive is a lack of assurance that those profit opportunities will persist for an

extended time in the future because a company or industry can be profitable now but not in the future. According to Economic theory companies that find it difficult to enter or pose great amounts of risk will have the most amounts of long term profits. In a sense this implies that a diversification method to acquire or merge with companies with low barriers to entry or with profitable returns in the short run might not prove to be as successful in the long run. This can be justified by the fact that such an industry with low barriers to entry will appeal to most companies trying to diversify. Therefore due to increase in demand the price of such companies might go up substantially and acquiring companies may be forced to pay a substantial premium. The increased number of competitors may also cut down expected returns and cause a strategy failure.

Managerial Hubris

A bad reason for any merger and acquisition can be managerial hubris[12]. Hubris is the pride or the ego of the managers. This implies that managers seek to acquire firms for their own personal motives and that the pure economic gains to the acquiring firm are not the sole motivation or even the primary motivation in the acquisition. Managerial hubris can lead firms to do a poor job of due diligence or to ignore relevant information that might otherwise unravel a deal. This is the underlying reason why managers end up paying a premium. There are some specific determinants of hubris takeovers. Since the acquiring firm pays a premium for the bid firm the stock market price for the target firm may go up. This may also be true since the acquiring firm may pay a premium in excess of the value of the target. This leads to the second determinant of hubris. The stock price of the acquiring firm goes down. The market and the share holders are not ready for the

[12]Defined by Richard Roll in "*The Hubris Hypothesis of Corporate Takeovers*," Journal of Business 59.

deal and may oppose it. This along with the added disapproval of the board members may disapprove the firm. The total effect of the rising value of the acquired firm and the decreased value of the acquiring firm is always negative. This is because the acquiring firm has to take of several operating agencies and costs to make sure the integration takes place. A classic example of this can be found in the RJR Nabisco takeover. It is often said that this incident is the closest thing that Wall Street came to a World War[13]. It had companies like Credit Suisse and Kohlberg Kravis along with the board members of RJR participate in it.

[13] Bryan Burrough, *Barbarians at the Gate*.

IV-Reasons for Success and Failure

With the reason comes the question of how to figure out the odds of success. It should be noted that there is no clear model of when a merger will fail or succeed. Several factors such as economic discrepancies and unknown cultural differences make it difficult to measure any successful or unsuccessful merger activity. It should also be noted that rarely will any one attribute, on its own lead to success. Many firms such as GE, Cisco, and Browning Ferris have increased value over time by using acquisitions. Researchers have examined this issue. Parrino and Harris (1999) examined 197 transactions between 1982 and 1987 and categorized the firms based upon whether the management is replaced at the time of the transaction, and the motive for the transaction. They found that in the five years after the transaction, merged firms earned 2.1% more than the industry average. They also found that almost all this excess return occurred in cases where the CEO of the target firm is replaced within one year of the merger. In most of these cases however, the CEO of the merged firms was replaced within one year. For, the firms where the CEO of the combined firms continued in place the merged firm did not do better than the industry.

Reasons for Success

Let's examine some of the studies done in this area specifically. I argued earlier that the underlying reason for a merger was synergy. This can also be applied in the case of successful mergers. For example, a study done by KPMG of the 700 largest deals from 1996 to 1998 states that firms that evaluate synergy carefully before an acquisition are 28% more likely to succeed than firms that do not. They also state that cost savings

synergies associated with reducing the number of employees are more likely to be accomplished than new product development or research and development synergies. For instance, only a quarter to a third of firms succeeded on the latter, whereas 66% of firms were able to reduce headcount after mergers.

A study done by McKinsey brings important insight into this matter. This study finds that the market apparently prefers deals that are part of an "expansionist" program, in which a company seeks to boost its market share by consolidating, by moving into new geographic regions, or by adding new distribution channels for existing products and services. The market seems to be less tolerant of transformative deals, those that seek to move companies into new lines of business or to remove a chunk of an otherwise healthy business portfolio. This study also found that size and frequency don't matter. It is often expected that a big deal, in proportion to the size of the company, would generate more value than a small firm; after all, a big deal can in principle generate bigger synergies. But as long as the stock market expects average deals to create no value for shareholders, the greater risk of value destruction may cancel out in the eyes of investors, at least the potentially greater synergies of a larger deal. It is also expected that companies doing deals frequently would create more value with each deal, since these experienced companies would be skilled at completing deals and at managing the post merger integration process. In fact, experienced companies seem to enjoy no special advantage. Perhaps investors recognize that these companies are better at doing deals and thus expect the companies to do an average number of them, with above average execution, in the future. If so, these superior deal-making skills would be embedded in the pre-

announcements stock price and wouldn't show up in the market's reaction to a given deal announcement[14].

Reasons for Failure

A study by Business Week[15] indicates that 61% of buyers destroyed their shareholders' wealth. A year after their deals, the losers' average return was 25 percentage points below their industry peers. The gains of the winning minority couldn't make up for the buyer's losses. The average return was 4.3% below their peers and 9.2% below the Standard and Poor 500. The worst deal according to Business Week was when WebMD Corp[16] announced a bid to buy Medical Manager Corp. and a subsidiary, CareInsite Inc., for $3.2 billion in stock. The 48% premium quickly evaporated and a year on the company limped 152% behind its health-care peers as doctors and insurers balked at using WebMd's services.

Several factors lead to an unsuccessful merger or acquisition. Taking the synergy factor into account again, a major reason for failure of any merger could be the lack of a post merger plan to deliver on synergy and control. Firms must plan for and work at creating these benefits. The absence of planning can be attributed to the fact that firms are seldom concrete about what form synergy will take and do not try to quantitatively estimate the cash flows associated with synergy. This is why it is important that firms try to estimate and value synergy, at the time of an acquisition. There is also the fact of a

[14] "*Deals that create value*", McKinsey Quarterly.
[15] Business Week focused on deals at least worth $500 million, eliminating any in which the buyer offered less than 15% of its market capitalization, The average buyer paid an amount equal to 47% of its own market value.
[16] Then known as healtheon/WebMD.

lack of accountability. Many people want to be involved in and lay claim to the credit when acquisitions are announced. Far fewer of these people want to be held responsible for the post-acquisition work of delivering on the promises made at the time of the deal. The criticism applies not only to the managers of the acquiring and target firms, but to their investment bankers as well.

Perhaps one of the most significant reasons for merger failures can be attributed to culture shock. This is something that gets better with time. A firm acquires a culture over time that helps it attract and keep its employees. When firms merge and try to consolidate, their cultures are likely to come into conflict. If not managed right, one or both firms will face employee flight and loss of morale. This problem becomes more serious as firms get larger and the cultural differences run deeper. Another reason for merger failure is the firm's failure to consider external constraints. In valuing control, we assumed that firms making poor investments would be able to raise their return on capital and become more productive. This is not always easily accomplished and may require painful decisions about employee layoffs. In an unconstrained free market, these actions can be carried out with significant emotional and economic pain to those involved. More realistically, firms have to deal with unions and government that may not take kindly to these actions. In such cases, the firms may be constrained in terms of implementing the actions it had planned to take.

Ego of the managers is another contributor to the failure of mergers. In most mergers, the managers at the top of the combining firms have to co-habit and share power. As a result of this, power struggles often arise between the chief executives of the combining

firms. We have discussed earlier how a premium can be a reason for a failure. Even the best acquisitions will fail stockholders if the acquiring firm pays too much for the target firm. When acquiring a publicly traded firm, the acquirer has to pay the market price plus a premium, to the extent that the market price might already incorporate the value of the synergy or control, and the premium is driven up by the rival bids for the target firm, it becomes difficult to avoid the winner's curse. This may explain why acquisitions of private firms, where the premium is not added to a market price, are more likely to succeed than acquisitions of publicly traded firms.

V-Empirical Analysis

In this section I will try to answer these questions in relation to pre merger conditions.

1. How does the value of the merger determine success of a merger? More specifically I look at the issue of whether a big merger increases the chance of a merger being successful.
2. Does a higher earnings per share lead to a higher chance of success of a merger?
3. Does a higher Asset-Income ratio help in determining the success or failure of the merger?
4. Does Debt-Income ratio increase the probability of a success or failure of a merger?

I feel that the higher the value of the merger, the more chances there are for the merger to fail. This fact can be assumed from past historical performance and also from existence of operating economic efficiencies. Positive earnings per share in my opinion will lead to a better merger success. This also holds for my other factor, Asset-Income ratio.

Data:

My data source for this paper has been varied and diverse. Firstly, I randomly collected eighteen companies who had participated in merger activities in the years 1998 and 1999. I was specifically interested in the fifth wave to get a better representation of our present economy. Also, since I look at the pre-merger conditions, my choice of the merger dates guarantees availability of data from 1990 till the merger date. This will allow me to look at the long-run pre-merger conditions that determine the success of a merger. I collected

my sample of companies form the Merger and Acquisition journal. Then I collected information on each of these companies by looking at various financial databases such as Stockval.

Methodology:

First, I look at the company information to determine whether a particular merger is a success or a failure. I look at several pieces of information such as the growth of the company, the stock price movement and the overall perspective of the company in the industry.[17] In the table I indicate a success by a 1 and a failure by a 0. After this I calculate the earnings per share, the debt-income ratio, the asset-income ratio and the value for each pre-merger year. I then took the averages of these measures over the pre-merger period. I compare these measures for the success and failure group of companies.

Finally, I estimate a linear regression model with success-failure (1, 0) as the dependent variable. The explanatory or independent variable I used is value, average debt-income ratio, average asset-income ratio, average earnings per share.

Analysis:

The first table represents the average of my four variables for each of the random companies that I selected. It should be noted that these are all pre-merger values. The average earnings per share for all of the companies is 1.3017. The table shows that GM has the lowest average EPS and Albertson's has the highest average EPS. Six companies have above average earnings per share and the remaining have below average earnings

[17] Please see attached table A in the appendix section.

per share. The average asset income ratio for all of the companies is 23.0443. We see that Deere has the lowest Asset-Income ratio of -14.92 and Bank of America has the highest Asset-Income ratio of 104.7026. Only three companies have an Asset-Income ratio higher than the average. The high asset income ratio could be offset by Bank of America's high figures. On observance of the Debt-Income ratio we see that the average number is 15.3367. Here Citigroup has the highest average Debt to Income ratio of 177.975 which is offset by a low of -3.667 by Deere and Co. Again only three companies have a higher debt –Income ratio than the average and fifteen companies have a lower figure than the Debt-Income ratio.

Table 1.

	Avg EPS	Asset Income	Debt/Income	Success/Failure
Caterpillar	1.0225	7.8819	3.034	1
CVS	0.3416	10.69	2.54	1
Deere	1.235	-14.92	-3.667	0
Duke	1.201	20.69	7.134	0
GM	-0.785	17.8034	7.4923	1
Hertz(ford)	3.066	38.11	11.99015	1
Intel	0.455	2.791	0.2218	1
JCP	2.612	16.629	9.604	0
McGrawHill	1.0633	32.5	10.7	1
Sun Microsystems	0.095	2.64	1.109	0
Albertson's	1.31889	17.072	7.8567	1
AT &T	4.89	87.9607	15.9104	0
Kroger	0.3411	13.819	17.597	1
BAC	2.465	104.7026	0.16629	1
Citi	0.85875	22.27	177.975	0
SBC	0.79	7.704	1.2655	0
XOM	1.1344	13.488	1.6061	0
Intl Paper Co	1.326	12.967	3.527	1
Average	**1.30169667**	**23.04436667**	**15.33679111**	**0.555555556**

Table 2 presents the average values for the success and failure groups of the companies.

Table 2.

	Average Value	Average EPS	Long Term Asset-Income	Long Term Debt-Income
Success	**9.19258**	**1.061439**	**25.83369**	**6.512524**
Failure	**33.4817375**	**1.60201875**	**19.5577125**	**26.367125**

We see that the companies that have succeeded have an average merger value of $9.19258 Billion. Whereas the companies that have failed have a much larger average value of $33.4 Billion. I was expecting this to take place as a higher merger value often leads to failed mergers. Higher earnings per share represent higher profitability. I was expecting that a higher earnings would lead to successful mergers. This was not the case. I was expecting successful mergers to have a higher asset-income ratio. This was consistent with the results as the successful mergers had an asset-income ratio of 25.83 compared to an asset-income ratio of 19.55 in the failed companies. On average, the failed companies had a higher debt-income ratio of 26.36 compared to the debt-income ratio of the successful companies.

Regression Equation:

We now move to the regression equation. I look at the factors affecting the success of the mergers in a multivariate regression framework. I ran several regression analyses which are attached in the appendix. The results of the regression are listed below.[18]

[18] Y=bx
dy/dx=b>0 => A higher value of X increases the chance of success.
=b<0 => A higher value of X will lead to failure.

Therefore if b<0 success is inversely related to the value of merger.

Column one, presents the regression model where the value of the merger is regressed on the success failure index. The coefficient of the value of the merger variable is -0.007. The t-statistic is -1.824 which is statistically significant. This negative coefficient means that higher the value of merger the lower the chances of the merger and lower the chances of success of the merger.

Table 3.

	Model 1	Model 2	Model 3	Model 4	**Final Model 5**
Intercept	0.697306	0.666983	0.511142	0.60292506	**0.755204**
(t-Stat)	5.084477	3.805957	3.212597	4.67504079	**4.86627**
Value	-0.00709				**-0.00966**
(t-Stat)	-1.82473				**-2.21915**
Average EPS		-0.0856			**-0.23019**
(t-Stat)		-0.88109			**-2.0655**
Average Asset Income			0.001927		**0.0132**
(t-Stat)			0.442607		**2.505336**
Average Debt Income				- 0.00308862	**-0.00073**
(t-Stat)				-1.02238565	**-0.25333**

Column two, presents the regression model where the average earnings per share of the companies are regressed on the success failure index. The coefficient of the EPS variable is -0.0856. The t-statistic is -0.881 which is statistically insignificant.

Column three, presents the regression model where the average asset-income ratio of the companies is regressed on the success failure index. The coefficient of the asset-income variable is .0019. The t-statistic is .442 which is statistically insignificant.

Column four, presents the regression model where the average debt-income ratio of the companies is regressed on the success failure index. The coefficient of the debt-income variable is -0.00308. The t-statistic is -1.022 which is statistically insignificant.

Using simple bivariate regressions the coefficients are coming out to be statistically insignificant. However, bivariate regression results can be misleading because it omits other characteristics that might affect the success and failure of the merger. So it is more appropriate to analyze the problem in a multivariate framework. This analysis is done by running the regression model five as shown in the above table. This model we regress the success failure index on the value of the merger, average earnings per share, average asset-income ratio, and average debt-income ratio. Most of the coefficients turn out to be statistically significant. The coefficient of the value of the merger is -0.0096 and the t-statistic is -2.21, which is statistically significant. This means that the higher the value of the merger the more chances of it to fail. **This confirms my hypothesis that a bigger merger mat not necessarily lead to success.**

The coefficient of the average asset-income variable is 0.0132 and the t-statistic is 2.505, which is statistically significant. This means that the higher the asset-income ratio, higher the chances of success of the merger. This also confirms to our earlier hypothesis that a higher asset-income ratio increases the chances of a success of a merger.

The coefficient of the Debt income ratio is -.00073. The t-statistic is -.2533 which is not statistically significant. This variable has a correct sign, that is the higher the value of the debt-income ratio the lower the chances of success. So it confirms to our findings in table 2.

The coefficient of the earnings per share in model 5 is -0.23 and the t-statistic is -2.0655. This does not support my earlier hypothesis that a higher earnings per share will lead to a success. I plan to analyze this in future study.

Conclusion and Summary

The objective of this thesis was to determine if certain pre-merger factors will lead to the success or failure of the merger. While my analysis of asset-income ratio, debt-income ratio and merger value was consistent with my hypothesis, my hypotheis of the debt-income ratio was not. My analysis took into account these four factors (asset-income ratio, debt-income ratio, merger value and earnings per share), prior to the merger until 1990. Through statistical analysis I found that the t-statistic of the merger value, asset-income ratio and earnings per share were significant. The debt income ratio was however insignificant. The final conclusion is that a higher value of merger leads to a failure, a higher asset-income ratio leads success and a higher debt-income ratio leads to failure of a merger.

In the first part of the paper I write about the background on mergers and acquisitions. I present to the readers the different types of mergers and how the terms are interchangeably used in the street. I then describe the different waves of mergers and acquisitions and the historical significance of each wave. This historical briefing on mergers was a crucial introduction for the readers before I could analyze my hypotheis about the fifth wave. I write about the different industries and the origin of mergers in the first wave beginning in 1897. The fifth wave represents information for my empirical analysis which still continues.

In the next part I discuss the reasons for mergers and acquisitions. Here, I present the various synergies that can be achieved including operating synergy, financial synergy and

the diversification. I also write about managerial hubris, which is a unfavorable reason for mergers to take place.

The next section discusses why mergers and acquisitions fail or succeed. I take past research into consideration. This can be summarized by stating that pre-merger strategy and successful implementation of this strategy is crucial. Culture shock and lack of pos-merger accountability are some of the other reasons for failures. Studies from past research also shows that the market prefers deals of an "expansionist" program where companies move into new geographies or adding new distribution channels to their existing infrastructure. I plan to look at this aspect of mergers and acquisitions in future research. I also want to look at Earnings per Share pre merger conditions of the target firms in the future.

The next section illustrates my empirical analysis completed with respect to the value, earnings per share, Asset-Income ratio and the Debt-Income ratio. I mention my data source and the use of databases such as Stock Val from which I have derived my information. In my methodology section I go on further to show my calculations of the different ratios and the factors I chose. In my analysis section, I present the success/failure table and the average values for the successful and failed companies. I present my multivariate regression framework and the significance of my findings.

References

Barney, 2002, Gaining and Sustaining Competitive Advantage.

Bieshaar, Jeremy Knight and Alexander Wassenar, 2001, "Deals That Create Value", McKinsey Quarterly.

Culpan, 2002, Global Business Alliances.

Ernst, Tammy Halevy, 2000, "When To Think Alliance", McKinsey Quarterly.

Feinschreiber and Margaret Kent, 2002, International Mergers and Acquisitions, A Country to Country Tax guide.

Gaughn, 2002, Mergers, Acquisitions and Corporate Restructuring.

Gup, 2002, Mega mergers in a global economy: causes and consequences.

Habeck, Fritz Kroger and Michael R Tram, 200, After the Merger.

Henry, 2002, "Mergers: Why Most Big Deals Don't Pay Off", Business Week.

Hill, Jeffrey Harrison and R. Dunne Ireland, 2001, Mergers and Acquisitions- A guide to creating value for Stakeholders.

Lajoux, 1998, The Art of Mergers and Acquisitions integration.

Picot, Gerhard, 2002, Handbook of international mergers and acquisitions: preparation, implementation and integration.

Ross, Westerfield and Jaffe, 1998, Corporate Finance, McGraw Hill.

Schleier, 2001, How to think like the World's Greatest Masters of Mergers and Acquisitions

Tudor, 2001, Super Searches on Mergers and Acquisitions.

Weston, 2002, Cases in Dynamic Finance.

Table A-Showing the Date of Merger and % change in stock price after the merger.

	DOM	Success/Failure	Original($)	Current($)	% Change in Stock Price after merger
Caterpillar	4/9/1998	1	46.63	67.22	44%
CVS	3/31/1998	1	36.19	29.95	-17%
Deere	12/31/1998	0	30.5	50.73	66%
Duke	4/20/1998	0			
GM	7/10/1999	1	55	37.27	-32%
Hertz(ford)	7/8/1999	1	28	10.9	-61%
Intel	7/13/1999	1	39.34	24.91	-37%
JCP	3/1/1999	0			
McGrawHill	7/6/1999	1	51.75	59.64	15%
SunMicrosystems	5/19/1998	0	10.41	3.74	-64%
Albertson's	Apr-99	1	52.38	18.61	-64%
AT &T	Feb-99	0	237.19	22.1	-91%
Kroger	May-99	1	15	16.75	12%
BAC	Sep-98	1	49.63	83.53	68%
Citi	Oct-98	0	17.72	43.45	145%
SBC	Oct-99	0	51	24.18	-53%
XOM	Nov-99	0	33.28	35.33	6%
Intl Paper Co	May-99	1	42.06	39	-7%

Table B Regression Results with Model with all 4 factors.

SUMMARY
OUTPUT

Regression Statistics	
Multiple R	0.675489245
R Square	0.45628572
Adjusted R Square	0.288989019
Standard Error	0.431144087
Observations	18

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	4	2.027936535	0.506984134	2.727404165	0.075552158
Residual	13	2.41650791	0.185885224		
Total	17	4.444444444			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.755204135	0.155191568	4.86627041	0.00030807	0.419933201	1.09047507	0.419933201	1.09047507
value	**-0.009658304**	**0.004352249**	**-2.219152555**	**0.044888758**	**-0.019060764**	**-0.000255844**	**-0.019060764**	**-0.000255844**
eps	**-0.230194716**	**0.11144723**	**-2.065504156**	**0.05941052**	**-0.470961771**	**0.010572339**	**-0.470961771**	**0.010572339**
asset-income	**0.013199645**	**0.005268613**	**2.505335837**	**0.026322537**	**0.001817501**	**0.024581789**	**0.001817501**	**0.024581789**
debt-income	-0.000725997	0.002865836	-0.253328071	0.80397676	-0.006917257	0.005465264	-0.006917257	0.005465264

Table C Regression Results with Model Value.

Value of Merger

Regression Statistics	
Multiple R	0.415036115
R Square	0.172254977
Adjusted R Square	0.120520913
Standard Error	0.479509305
Observations	18

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.765577674	0.765577674	3.329623916	0.086770883
Residual	16	3.67886677	0.229929173		
Total	17	4.444444444			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.697305689	0.137144043	5.084476679	0.000110412	0.406573371	0.988038008	0.406573371	0.988038008
X Variable 1	-0.007091847	0.003886527	-1.82472571	0.086770883	-0.015330915	0.001147222	-0.015330915	0.001147222

Table D Regression Results with Model Earnings per Share.

Earnings per Share

SUMMARY
OUTPUT

Regression Statistics	
Multiple R	0.21511497
R Square	0.04627445
Adjusted R Square	-0.013333397
Standard Error	0.514707455
Observations	18

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.205664223	0.205664223	0.776314742	0.391314262
Residual	16	4.238780221	0.264923764		
Total	17	4.444444444			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.666982774	0.17524706	3.805956991	0.00155309	0.295475686	1.038489861	0.295475686	1.038489861
X Variable 1	-0.085601524	0.097154423	-0.88108725	0.391314262	-0.291559654	0.120356607	-0.291559654	0.120356607

Table E Regression Results with Model Asset-Income Ratio.

Asset-Income

Regression Statistics	
Multiple R	0.109980453
R Square	0.0120957
Adjusted R Square	-0.049648319
Standard Error	0.523849082
Observations	18

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.053758667	0.053758667	0.195900759	0.663975299
Residual	16	4.390685777	0.274417861		
Total	17	4.444444444			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.511142116	0.159105576	3.212597129	0.00543196	0.173853439	0.848430793	0.173853439	0.848430793
X Variable 1	0.001927301	0.004354433	0.442606777	0.663975299	-0.007303681	0.011158284	-0.007303681	0.011158284

Table F Regression Results with Model Debt-Income Ratio.

Debt Income

Regression Statistics	
Multiple R	0.247635425
R Square	0.061323304
Adjusted R Square	0.00265601
Standard Error	0.510630519
Observations	18

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.272548016	0.272548016	1.045272415	0.321808977
Residual	16	4.171896428	0.260743527		
Total	17	4.444444444			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.602925064	0.128966803	4.675040792	0.000253495	0.329527717	0.876322412	0.329527717	0.876322412
X Variable 1	-0.003088619	0.003020992	-1.022385649	0.321808977	-0.009492836	0.003315597	-0.009492836	0.003315597